

1 Claims

2 1. A method of maintaining a minimum flow velocity in a return piping of a
3 centralized machine tool coolant filtration system for a plurality of machine tools which each are
4 supplied with coolant from a filtration apparatus and each of which collect contaminated coolant
5 and pump the same into said return piping, comprising the steps of:

6 directing a make up flow of filtered coolant from a filtration apparatus included in
7 said system into said return; and, controlling said make up flow of filtered coolant to be at a flow
8 rate just sufficient to maintain said minimum flow velocity therein.

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10 2. The method according to claim 1 wherein said step of controlling said
11 make up flow is carried out by interposing a pressure reducing valve upstream of said return
12 piping to receive said make up flow and setting said pressure reducing valve to maintain a
13 downstream pressure corresponding to the pressure required to induce said minimum flow
14 velocity in said return piping.

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16 3. The method according to claim 2 wherein said pressure setting of said
17 pressure reducing valve is determined in part by calculating the pressure losses in said return
18 piping at said minimum flow velocity.

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20 4. The method according to claim 1 further including the step of preventing
21 any diversion of make up coolant flow from said filtration apparatus as necessary to maintain
22 adequate pressure of coolant supplied to said machine tools.

1 5. The method according to claim 4 wherein said step of preventing any
2 diversion of make up coolant flow to said return piping is carried out by interposing a pressure
3 sustaining valve in a filtered coolant supply piping to said return piping set to a minimum
4 pressure level necessary to supply said machine tools with coolant.

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6 6. An arrangement for maintaining a minimum flow velocity in a return pipe
7 for receiving dirty coolant from a plurality of machine tools, each supplied with filtered coolant
8 via a supply conduit from a filtration apparatus, each machine tool collecting dirty coolant in an
9 associated sump and pumping said collected coolant into a return line to said filtration apparatus,
10 said arrangement including a bypass line for directing make up from said clean coolant flow of
11 coolant supply piping to said return piping; and, a pressure reducing valve interposed in said
12 bypass line responsive to pressure in said return piping to cause flow therethrough of clean
13 coolant just sufficient to maintain a pressure in said return piping corresponding to said
14 minimum flow velocity.

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16 7. The arrangement according to claim 6 further including a pressure
17 maintaining valve interposed in said bypass line and closing as necessary to maintain an
18 upstream minimum pressure in said supply piping sufficient to supply said plurality of machine
19 tools.